

**TABLE 27****Potential Pathways Of Exposure In The Vicinity Of The Livingston Rail Yard, Montana**

Medium of Concern	Potential Exposure Pathway	Pathway Likely to be Currently Complete?	Pathway Potentially Complete in the Future?	Exposure to be Quantitatively Evaluated	Pathway Evaluated Quantitatively for Current or Future Exposures?
Groundwater	Ingestion of contaminated groundwater from a domestic or municipal well.	No	Yes	Yes. The alluvial aquifer is currently being used as a drinking water source and there is no ordinance which would prevent a private citizen in the county from placing a well within the contaminant plume downgradient from the Site.	Future
	Dermal exposure of contaminated groundwater.	No	Yes	Yes. Dermal contact with groundwater is possible during showering and bathing if water from the contaminated plume is used.	Future
	Dermal exposure to groundwater during irrigation.	Yes	Yes	Potentially contaminated groundwater is currently used for irrigation. A screening analysis showed, however, that the pathway is not likely to significantly contribute to overall risk.	NA
	Inhalation of volatile chemicals in groundwater during irrigation.	Yes	Yes	Potentially contaminated groundwater is currently used for irrigation. A screening analysis showed, however, that the pathway is not likely to significantly contribute to overall risk.	NA
Surface Soils	Incidental ingestion of chemicals in surface soils	Yes	Yes	Yes. Surface soils on the Site are contaminated, and incidental ingestion is possible for onsite workers and trespassers.	Current
	Dermal Contact with chemicals in surface soils*	Yes	Yes	No. Surface soils on the Site are contaminated and dermal contact is possible for onsite workers and trespassers. However, toxicological information is insufficient for quantitatively evaluating dermal exposure to PAHs.	NA*
Subsurface Soils	Incidental ingestion of chemicals in subsurface soils	Yes	Yes	Workers may come into contact with contaminated subsurface soil during excavation. A screening analysis showed, however, that risks from this pathway would be minimal.	NA
Surface Water	Incidental ingestion of surface water from swimming or fishing activities	No	No	No. Concentrations of chemicals in surface water are very low and no COCs were identified.	NA
	Dermal contract with surface during swimming or fishing activities	No	No	No. Concentrations of chemicals in surface water are very low and no COCs for surface water were identified.	NA
Resuspended	Inhalation of airborne dust resuspended from	Yes	Yes	No. Screening analyses were performed for worker	NA

\* At the time the BRA was conducted, there were no dermal slope factors to quantitatively evaluate risk from dermal contact with contaminated surface soils. Since that time, EPA has developed slope factors and it would be appropriate to evaluate the pathway quantitatively if the risk assessment were conducted today.

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Dust and Soil Vapors	contaminated surface soils and of vapors emanating from soil			exposures to soil gas and residential exposures to resuspended dust. The analyses showed that significant chemical exposures are not expected from these pathways.	
Indoor Air	Inhalation of chemicals volatilizing from groundwater or subsurface soils and entering basements of homes	Yes	Yes	Yes. Basement air is contaminated and inhalation of chemicals in indoor air is likely for residents and workers.	Current
	Inhalation of volatile organic chemicals when showering	No	Yes	Yes. Inhalation of volatile chemicals is possible during showering and bathing if water from the contaminated plume is used.	Future
Breast Milk	Ingestion of breast milk by infants of mothers exposed to site-related contaminants	No	Yes	No. Chemicals in groundwater are not likely to bioaccumulate, and residential soils are not greatly contaminated. Bioaccumulation of COCs in breast milk is not expected.	NA
Fish	Ingestion of fish caught by fishermen from the Yellowstone River	No	No	Contaminant levels in surface water and fish are very low, and no contaminants (VOCs or SVOCs) have been detected in fish tissues.	NA
Home-grown Vegetables	Ingestion of home-grown vegetables grown in contaminated soil and/or watered with contaminated groundwater	No	No	No. Contaminated levels in soils offsite are low, and chemicals in groundwater are not lipophilic.	NA
Beef and Dairy Products	Ingestion of beef and dairy products from cows raised near the Site and exposed to site-related contaminants in soil, groundwater, or surface water	No	No	No. Chemicals in groundwater are not lipophilic, and soils off site are not contaminated or have only low levels of contaminants. Furthermore, no cattle are raised near the Site.	NA
Sediment	Ingestion of Sediment	No	Yes	Yes. Ingestion of sediment is possible during recreational activities at the Yellowstone River.	Future
	Dermal Contact with Sediment	No	Yes	Yes. Dermal contact is possible during recreational activities at the Yellowstone River.	Future

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